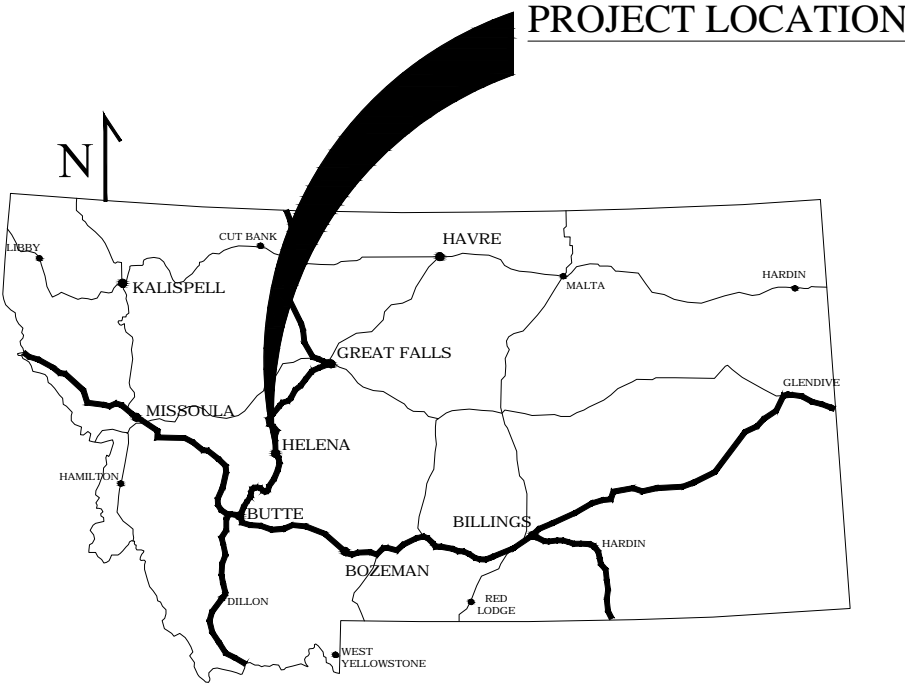
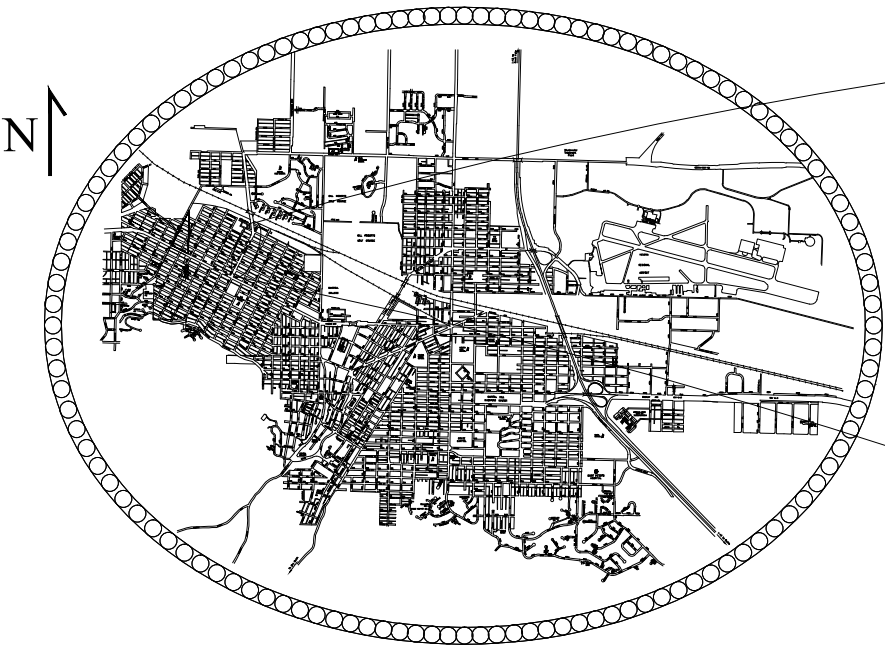


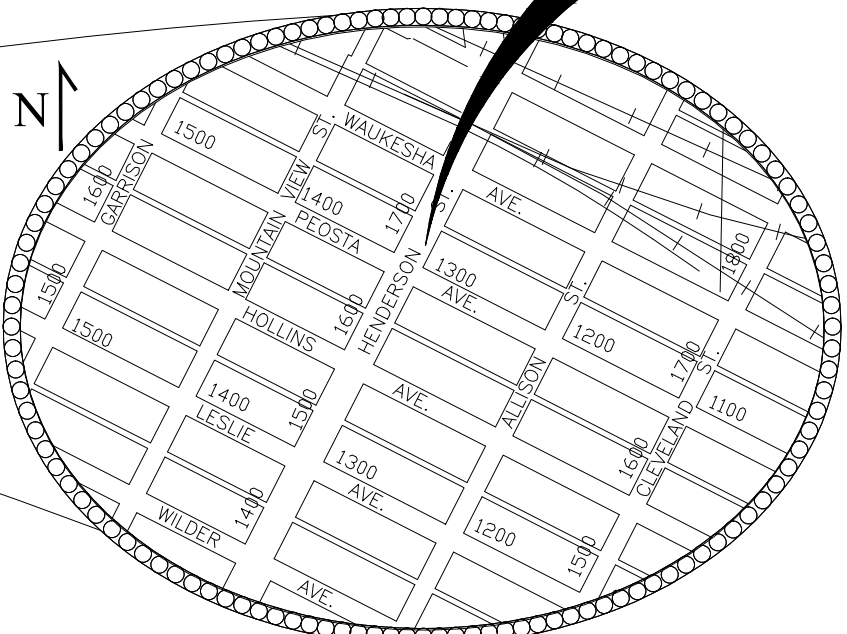
CITY OF HELENA PROJECT #17-08
HENDERSON STREET DRAINAGE
IMPROVEMENTS
CONSTRUCTION PLANS



MONTANA
STATE MAP



CITY OF HELENA
VICINITY MAP



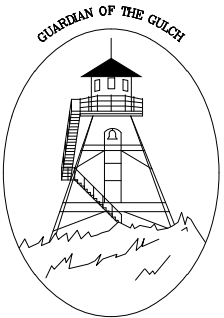
CITY OF HELENA
PROJECT LOCATION MAP

APPROVED BY:
CITY OF HELENA

CITY ENGINEER
DIRECTOR OF PUBLIC WORKS

PREPARED BY:
CITY ENGINEERING DIVISION
CITY OF HELENA
316 NORTH PARK AVENUE
HELENA, MONTANA

SEPTEMBER 2017



City of Helena

INDEX OF SHEETS

SHEET 1	COVER
SHEET 2	PROJECT NOTES AND LEGEND
SHEET 3	PLAN AND PROFILE, STA. 0+00 TO 5+50
SHEET 4	PLAN AND PROFILE, STA. 5+50 TO 10+50
SHEET 5	PLAN AND PROFILE, STA. 10+50 TO 15+00
SHEET 6	LANDSCAPE PLAN
SHEET 7	GENERAL DETAILS

H:\ENGINEERING\PROJECT FILES\17 Projects\17-08 Henderson Ave Drainage Improvements\plans\HENDERSON ADDENDUM 1.dwg

GENERAL PROJECT NOTES:

1. CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS FOR CONSTRUCTION, DEWATERING AND STORMWATER DISCHARGES AT THEIR OWN EXPENSE.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR USE OF STORM WATER BEST MANAGEMENT PRACTICES (BMPS) TO CONTROL STORMWATER RUNOFF AND RUNON TO EACH PROJECT AREA. BMPS SHALL BE IMPLEMENTED FOR ANY STORMWATER COLLECTED PRIOR TO ANY DISCHARGE TO THE MUNICIPAL STORM SEWER SYSTEM.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DUST CONTROL DURING CONSTRUCTION.
4. THE LATEST EDITION OF THE CITY OF HELENA ENGINEERING AND DESIGN STANDARDS AND THE MONTANA PUBLIC WORKS STANDARDS (IN THAT ORDER) SHALL APPLY IN THE CASE OF ANY APPLICABLE CLARIFICATION OR INTERPRETATION OF THE PROJECT DRAWINGS OR SPECIFICATIONS.
5. WHEN WORKING NEAR AND/OR EXPOSING EXISTING UTILITIES AND SERVICE LINES, WORKERS SHALL UTILIZE HAND-DIGGING METHODS IN ORDER TO AVOID DAMAGE TO THOSE UTILITIES. IF DAMAGE OCCURS, THE COST OF REPAIR WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6. THE OWNER AND ALL AFFECTED RESIDENTS SHALL BE NOTIFIED NO LATER THAN ONE WEEK PRIOR TO CONSTRUCTION THAT WILL IMPACT ACCESSIBILITY TO THEIR PROPERTY, PARKING OR SERVICES.
7. ALL ASPHALT, CONCRETE AND CURB AND GUTTER THAT IS DEMOLISHED OR REMOVED UNDER THIS AGREEMENT SHALL BE PROPERLY DISPOSED OF AND ALL COSTS THEREOF SHALL BE BORNE BY THE CONTRACTOR.
8. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO DEMOLITION, INSTALLATION OR PLANTING OPERATIONS. ANY DAMAGE TO OR RESULTING FROM ENCOUNTERING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
9. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE RETURNED TO THEIR PRE-CONSTRUCTION CONDITION AT THE SOLE EXPENSE OF THE CONTRACTOR.
10. A PORTION OF THE PROJECT INVOLVES THE REMOVAL AND INSTALLATION OF INFRASTRUCTURE WITHIN THE TRAVELED RIGHT-OF-WAY. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL MEASURES NECESSARY TO ASSURE SAFE AND EFFICIENT FLOW OF VEHICULAR AND PEDESTRIAN TRAFFIC THROUGH THE CONSTRUCTION AREA(S).
11. A NEAT, VERTICAL SAWCUT SHALL BE MADE WHEREVER ASPHALT, CONCRETE, SIDEWALK OR CURB AND GUTTER REMOVAL ABUTS EXISTING INFRASTRUCTURE TO REMAIN.
12. SEWER BYPASS PUMPING IS NOT PAID FOR AS A SEPARATE BID ITEM UNLESS NOTED ON THE BID SHEETS. SEWER BYPASS PUMPING IS CONSIDERED INCIDENTAL TO THE WORK IN ALL LOCATIONS AND SEPARATE PAYMENT WILL NOT BE MADE FOR PUMPING IF NEEDED.
13. DISPOSE OF ALL EXCAVATED SOIL, DEBRIS, ASPHALT, AND CONCRETE OFF THE PROJECT SITE AND IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.

PROJECT UTILITY NOTES:

1. THE ENGINEER HAS OBTAINED UNDERGROUND UTILITY INFORMATION FROM OWNERS OF THE UNDERGROUND UTILITIES AND HAS INCLUDED THAT INFORMATION AS PART OF THESE PLANS. THIS UTILITY LOCATION INFORMATION IS APPROXIMATE AND MAY BE INCOMPLETE OR INACCURATE.
2. BEFORE BEGINNING ANY EXCAVATION, THE CONTRACTOR SHALL NOTIFY, THROUGH ONE-CALL NOTIFICATION CENTER, ALL OWNERS OF UNDERGROUND FACILITIES IN THE AREA OF THE PROPOSED EXCAVATION. THE PHONE NUMBER IS: **1-800-424-5555**.
3. AFTER AN OWNER OF AN UNDERGROUND FACILITY HAS LOCATED AND MARKED THE UNDERGROUND FACILITIES, THE CONTRACTOR SHALL DETERMINE IF WEATHER, TIME OR OTHER FACTORS MAY HAVE AFFECTED LOCATION MARKS, WARRANTING RELOCATION OF THE UTILITIES.
4. IF EXCAVATION HAS NOT OCCURRED WITHIN 30 DAYS OF THE LOCATE AND MARK, THE CONTRACTOR SHALL REQUEST THAT THE FACILITY BE RELOCATED AND REMARKED BEFORE EXCAVATING UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE WITH THE UNDERGROUND FACILITY OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH RELOCATING AND REMARKING A FACILITY THAT IS NOT EXCAVATED WITHIN 30 DAYS OF THE LOCATE AND MARK.
5. THE CONTRACTOR MAY NOT BEGIN EXCAVATION BEFORE THE LOCATING AND MARKING IS COMPLETE OR BEFORE THE CONTRACTOR IS NOTIFIED THAT LOCATING AND MARKING IS UNNECESSARY.
6. THE CONTRACTOR SHALL LOCATE AND MARK THE AREA TO BE EXCAVATED IF REQUESTED BY THE UNDERGROUND FACILITY OWNER OR THEIR REPRESENTATIVE. IF THE CONTRACTOR DISCOVERS AN UNDERGROUND FACILITY THAT HAS NOT BEEN LOCATED AND MARKED, THE CONTRACTOR SHALL STOP EXCAVATING IN THE VICINITY OF THE FACILITY AND NOTIFY THE FACILITY OWNER OR THE ONE-CALL NOTIFICATION CENTER. IF THIS OCCURS, THE CONTRACTOR SHALL PROCEED WITH OTHER ELEMENTS OF THE PROJECT, AT NO COST TO THE PROJECT OWNER, UNTIL THE UNDERGROUND FACILITY OWNER HAS NOTIFIED THE CONTRACTOR THAT EXCAVATION CAN PROCEED.

MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS

The following sections of the Montana Public Works Standard Specifications (MPWSS), Sixth Edition, April 2010 are incorporated by reference.

DIVISION 1 - GENERAL REQUIREMENTS

Section 01010	Summary of Work
Section 01041	Project Coordination
Section 01050	Field Engineering
Section 01090	References
Section 01300	Submittals
Section 01400	Contractor Quality Control and Owner Quality Assurance
Section 01500	Construction and Temporary Facilities
Section 01570	Construction Traffic Control
Section 01700	Contract Closeout

DIVISION 2 - SITE WORK

Section 02112	Removal of Existing Pavement, Concrete, Curb, Sidewalk, Driveway and/or Structures.
Section 02114	Relocating or Removing Utility Poles, Street Signs and Mailboxes.
Section 02221	Trench Excavation and Backfill for Pipelines and Appurtenant Structures.
Section 02230	Street Excavation, Backfill and Compaction.
Section 02234	Sub Base Course
Section 02235	Crushed Base Course
Section 02502	Asphalt Prime and/or Tack Coat
Section 02510	Asphalt Concrete Pavement
Section 02528	Concrete Curb and Gutter
Section 02529	Concrete Sidewalks, Driveways, Approaches, Curb Turn Fillets, Valley Gutters and Miscellaneous New Concrete Construction.
Section 02600	Water Distribution
Section 02720	Storm Drain Systems
Section 02910	Seeding

DIVISION 3 - CONCRETE

Section 03210	Reinforcing Steel
Section 03310	Structural Concrete

APPENDIX A - APPLICABLE MONTANA PUBLIC WORKS STANDARD DRAWINGS

- Standard Drawing No. 02221-1: Typical Utility Trench
- Standard Drawing No. 02221-2: Pipe Bedding Alternate
- Standard Drawing No. 02660-1: Thrust Blocking Water Main Fittings
- Standard Drawing No. 02660-2: Water and Sewer Main Separation
- Standard Drawing No. 02720-3: Sanitary Sewer and Storm Drain Manhole
- Standard Drawing No. 02720-6: Precast Manhole Bases

APPENDIX A - APPLICABLE CITY OF HELENA STANDARD DRAWINGS

- Standard Drawing No. 4-1: Standard Specification Inlets
- Standard Drawing No. 4-5: Type 1 Drop Inlet
- Standard Drawing No. 4-8: Tire and Concrete Wash Basin
- Standard Drawing No. 4-9: Approved City Logo Manhole Lid "Storm Sewer" Lettering

ABBREVIATIONS

ADDN	ADDITIONAL	N	NORTH
APPROX	APPROXIMATE	NTS	NOT TO SCALE
CMP	CORRUGATED METAL PIPE	RCP	REINFORCED CONCRETE PIPE
CULV	CULVERT	SD	STORM DRAIN
CY	CUBIC YARD	SDWK	SIDEWALK
DET	DETAIL	SS	SANITARY SEWER SERVICE
DI	DUCTILE IRON, DRAIN INLET	STD	STANDARD
DWG	DRAWING	ST	STREET
ENGR	ENGINEER	TB	THRUST BLOCK
EOP	EDGE OF PAVEMENT	TBC	TOP BACK OF CURB
FES	FLARED END SECTION	TEL	TELEPHONE
FET	FLARED END TERMINAL	TYP	TYPICAL
INV	INVERT	UG	UNDERGROUND
LF	LINEAR FEET	UGP	UNDERGROUND POWER
MAX	MAXIMUM	UGT	UNDERGROUND TELEPHONE
MH	MANHOLE	UTIL	UTILITY
MIN	MINIMUM	WTR	WATER
MJ	MECHANICAL JOINT	WV	WATER VALVE
MPWSS	MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS		

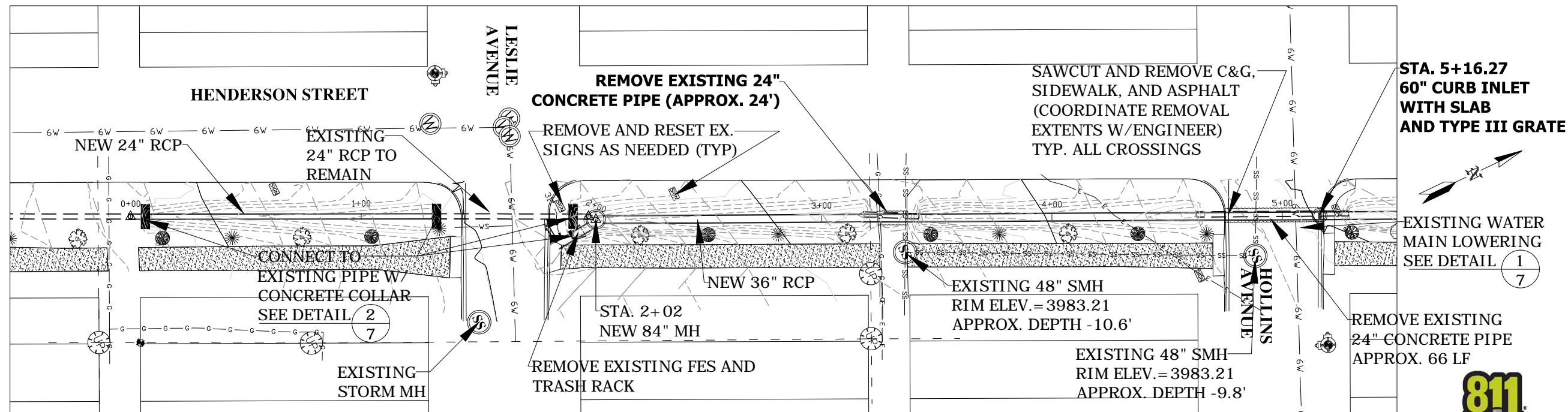
PROJECT PLANS LEGEND/KEY:

- EXISTING MAJOR TOPOGRAPHIC LINE (5' INTERVAL)
- EXISTING MINOR TOPOGRAPHIC LINE (1' INTERVAL)
- EXISTING CURB AND GUTTER
- EXISTING EDGE OF CONCRETE OR PAVEMENT
- EXISTING EDGE OF GRAVEL ROAD SURFACE
- EXISTING BUILDING
- EXISTING FENCE (TYPE VARIES)
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING OVERHEAD UTILITY
- EXISTING UNDERGROUND ELECTRICAL
- EXISTING NATURAL GAS MAIN (SIZE UNKNOWN)
- EXISTING 12 INCH DIAMETER RCP STORM SEWER
- EXISTING 18 INCH DIAMETER RCP STORM SEWER
- EXISTING 24 INCH DIAMETER RCP STORM SEWER
- EXISTING 30 INCH DIAMETER RCP STORM SEWER
- EXISTING 36 INCH DIAMETER RCP STORM SEWER
- EXISTING STORM SEWER INLET
- EXISTING VALLEY GUTTER
- EXISTING 4 INCH DIAMETER CI WATER MAIN
- EXISTING 6 INCH DIAMETER DI/CI WATER MAIN
- EXISTING 12 INCH DIAMETER DI WATER MAIN
- EXISTING WATER SERVICE LINE (SIZE VARIES)
- EXISTING WATER VALVE AND VALVE RISER BOX
- EXISTING FIRE HYDRANT
- EXISTING RESIDENTIAL IRRIGATION WELL
- EXISTING 6 INCH VCP SEWER MAIN
- EXISTING 8 INCH SEWER MAIN
- EXISTING 6 INCH SEWER SERVICE
- EXISTING 4 INCH SEWER SERVICE
- EXISTING 48" DIAMETER MANHOLE TO REMAIN
- NEW 8" SDR35 PVC SEWER MAIN
- NEW 48" DIAMETER MANHOLE
- NEW 60" DIAMETER MANHOLE
- NEW 4 INCH SEWER SERVICE LINE EXTENSION
- NEW 6 INCH SEWER SERVICE LINE EXTENSION

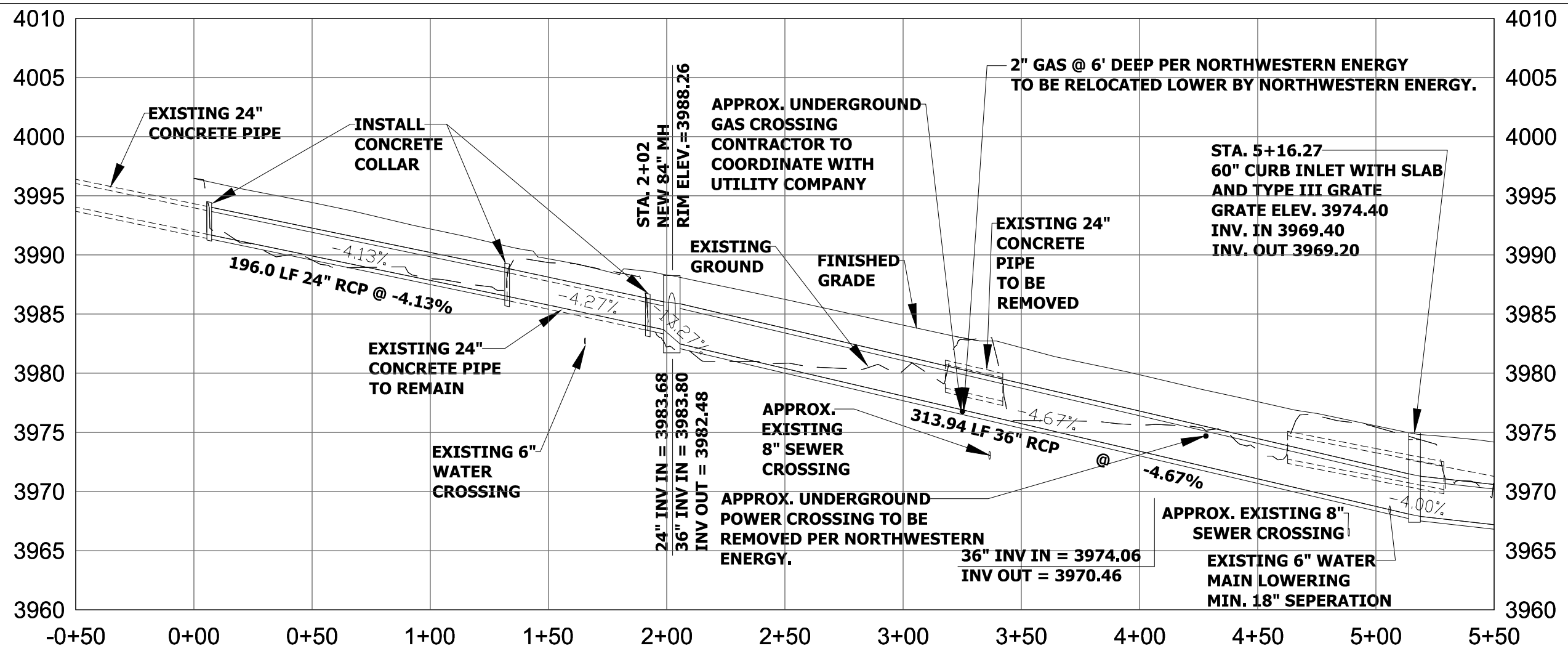
GENERAL NOTES:

1. 24 INCH CONCRETE PIPE, FLARED END SECTIONS (FES) AND TRASH RACKS SHALL BE LOADED, HAULED AND STOCKPILED AT THE CITY OF HELENA UTILITY MAINTENANCE YARD.
2. SAW CUTTING CONCRETE AND ASPHALT IS INCIDENTAL TO REMOVAL AND DISPOSAL AS UNCLASSIFIED EXCAVATION.

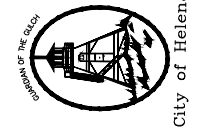
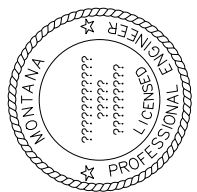
CITY OF HELENA PROJECT 17-08
HENDERSON STREET
DRAINAGE IMPROVEMENTS
GENERAL NOTES AND LEGEND



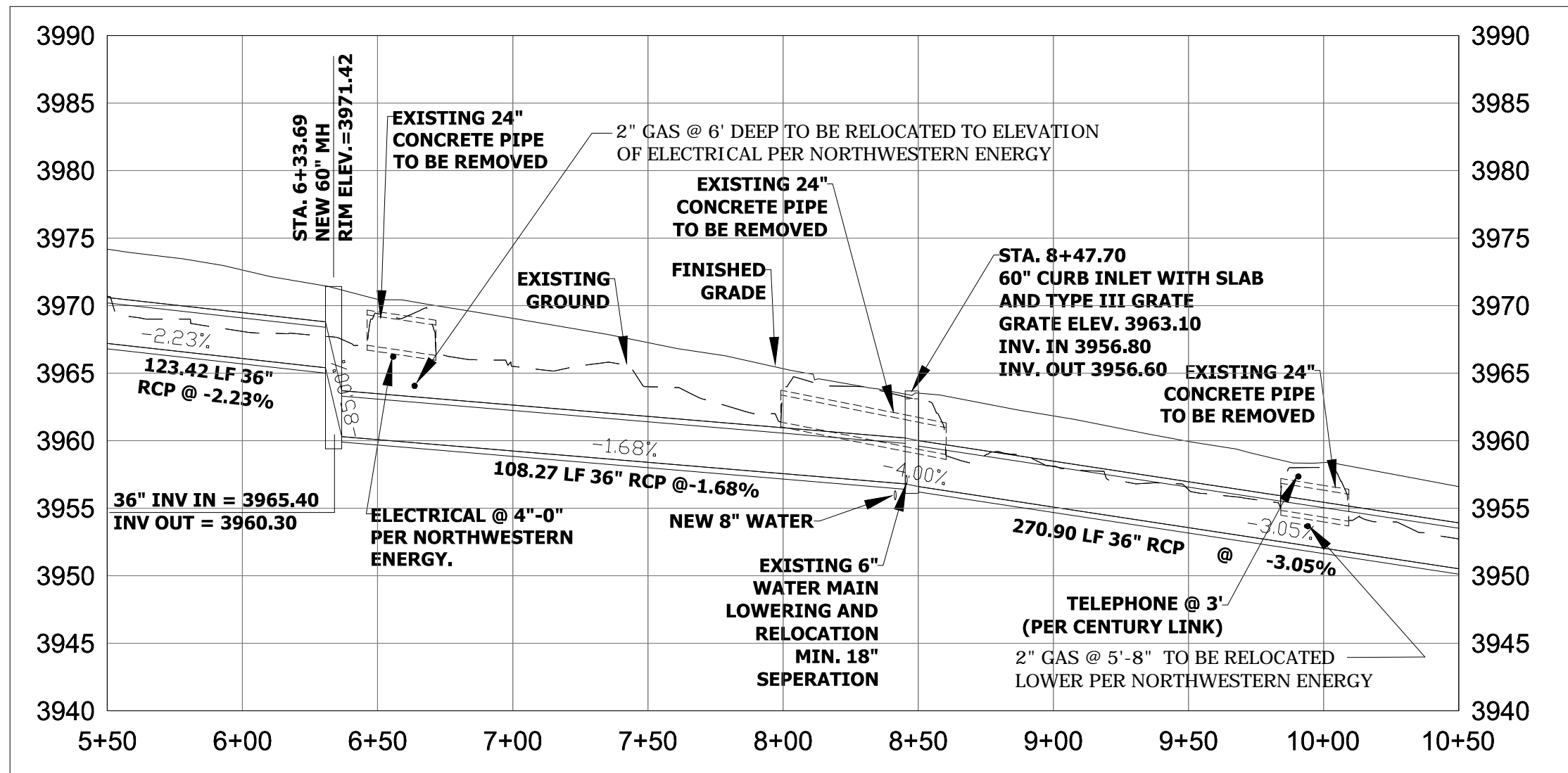
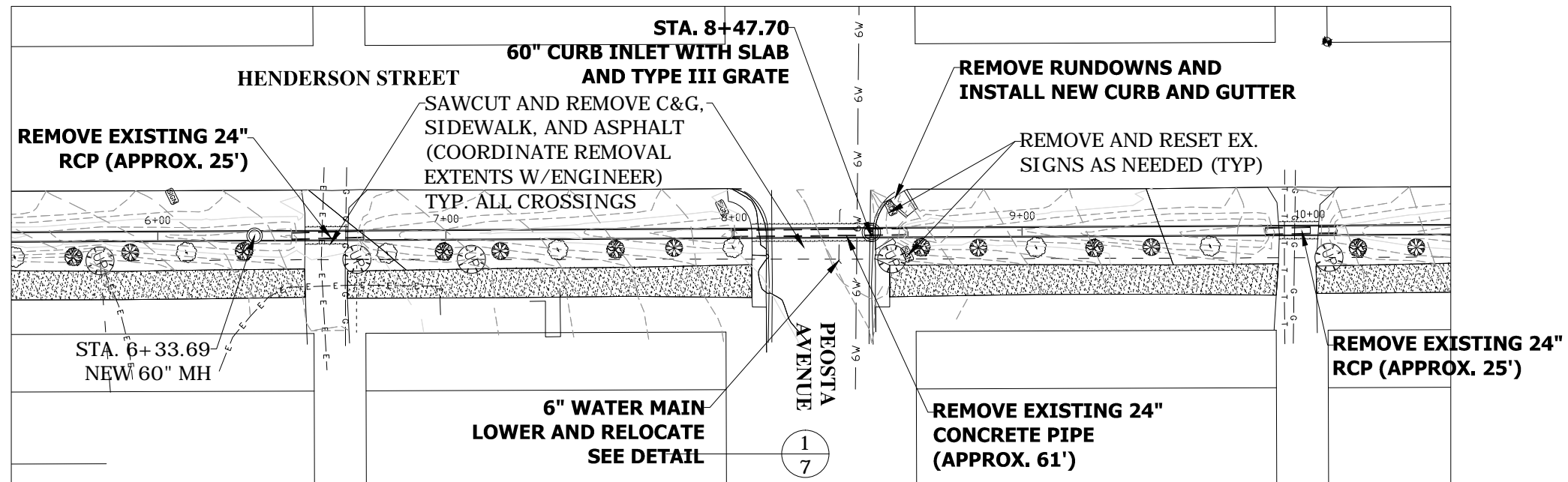
PLAN VIEW OF STORM DRAIN
HORIZONTAL SCALE: 1" = 50'



PROFILE VIEW OF STORM DRAIN
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

PROJECT: 17-08	DESIGNED: MJC	DRAWN: MLB	CHECKED: RCL	APPROVED: RCL	DATE: JULY 2017
					
					
<p>CITY OF HELENA PROJECT 17-08</p> <p>HENDERSON STREET</p> <p>DRAINAGE IMPROVEMENTS</p> <p>PLAN & PROFILE</p>					
<p>SHEET NO.</p> <p>3</p> <p>OF 7</p>					

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NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 17-08	DESIGNED: MJC	DRAWN: MLB	CHECKED: RCL	APPROVED: RCL	DATE: JULY 2017
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City of Helena

CITY OF HELENA PROJECT 17-08

HENDERSON STREET

DRAINAGE IMPROVEMENTS

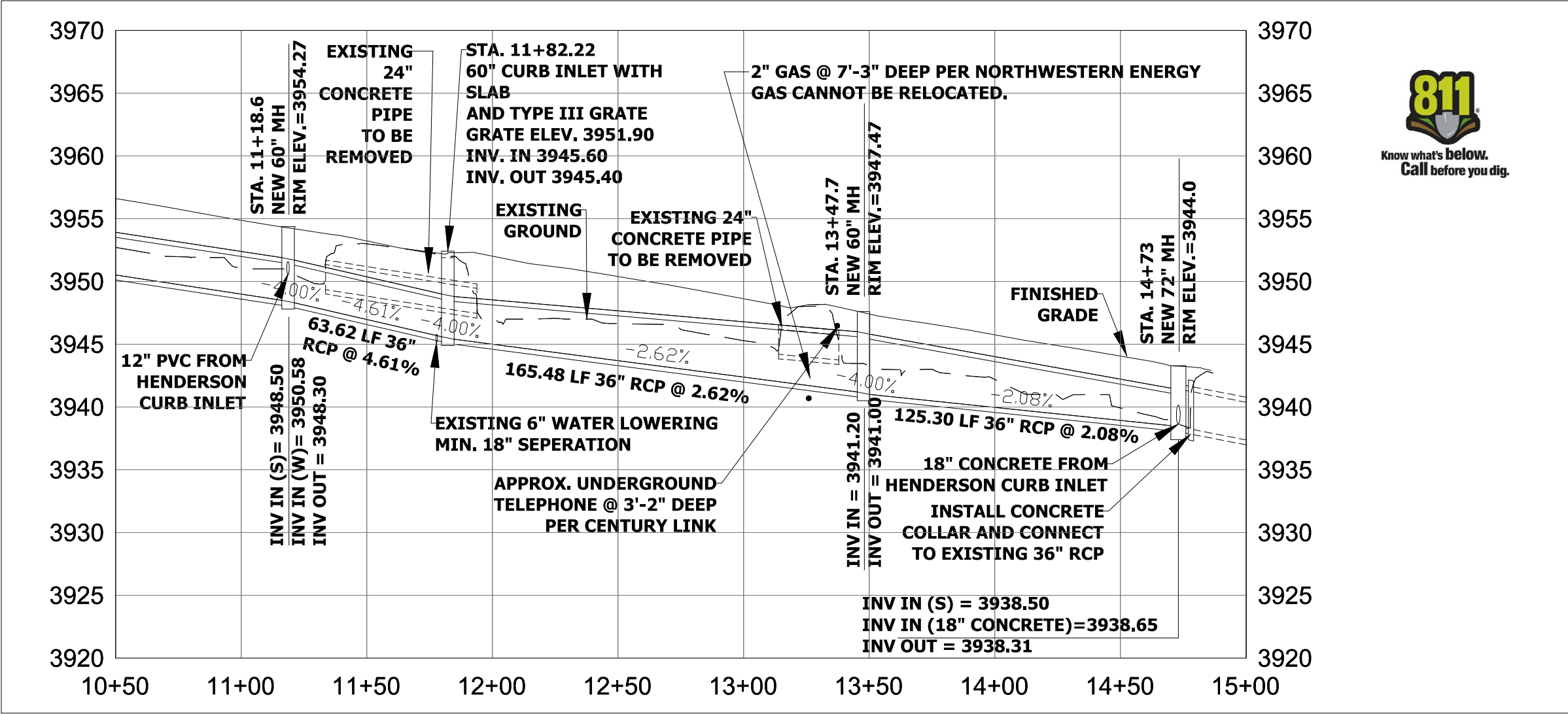
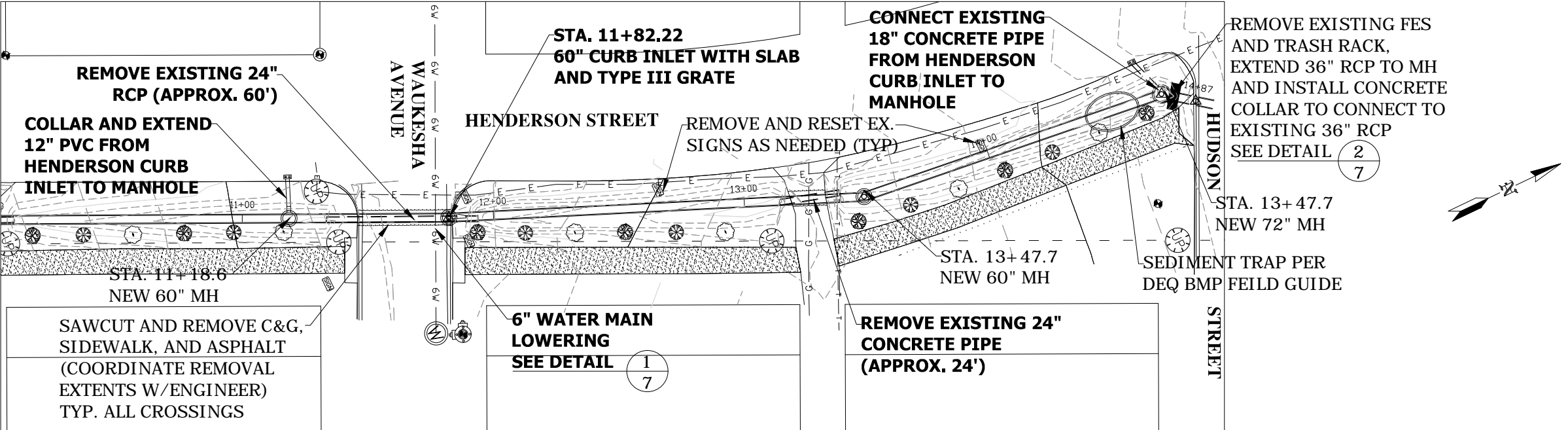
PLAN & PROFILE

SHEET NO.

4

OF 7

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REVISION DESCRIPTION	
NO.	DATE

PROJECT: 17-08	DESIGNED: MJC
DRAWN: MLB	CHECKED: RCL
APPROVED: RCL	DATE: JULY 2017

City of Helena

PROFESSIONAL ENGINEER
MONTANA
LICENSED
Professional Engineer

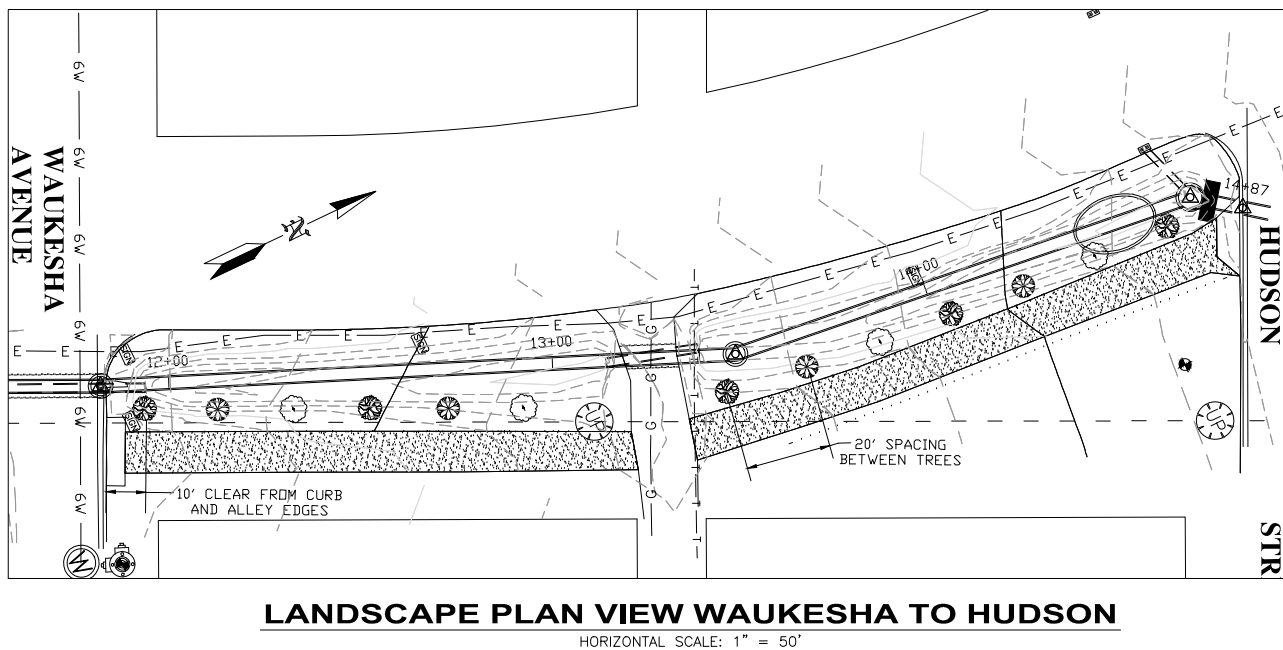
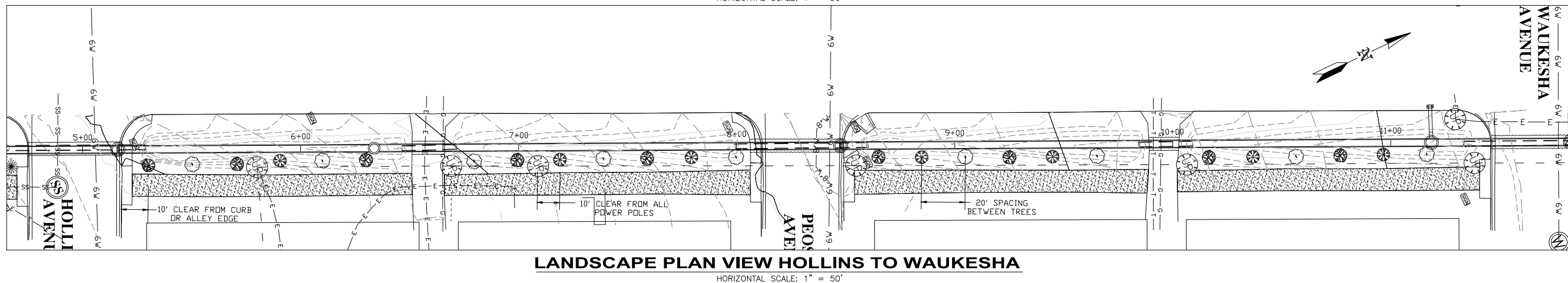
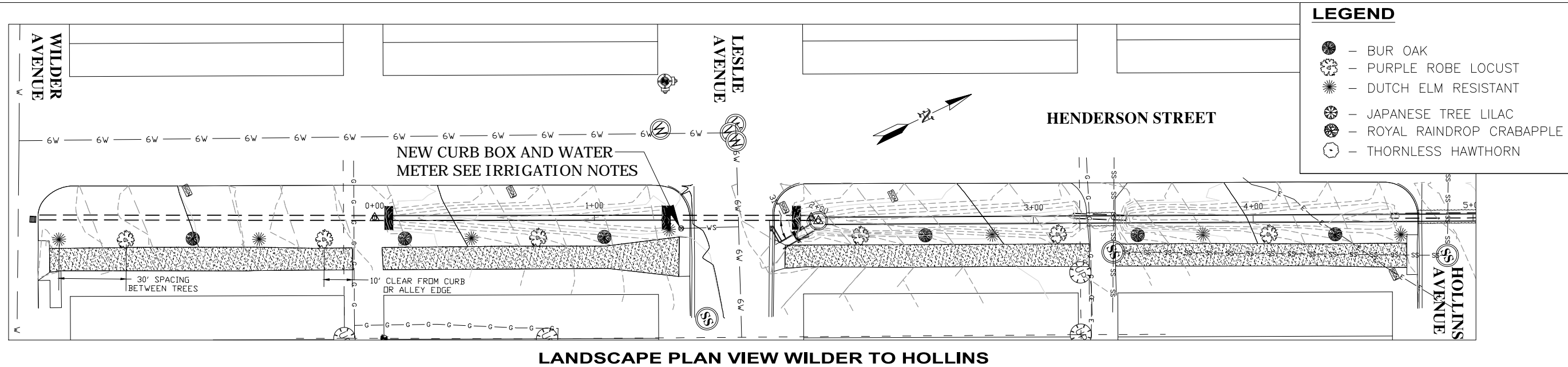
CITY OF HELENA PROJECT 17-08
HENDERSON STREET
DRAINAGE IMPROVEMENTS

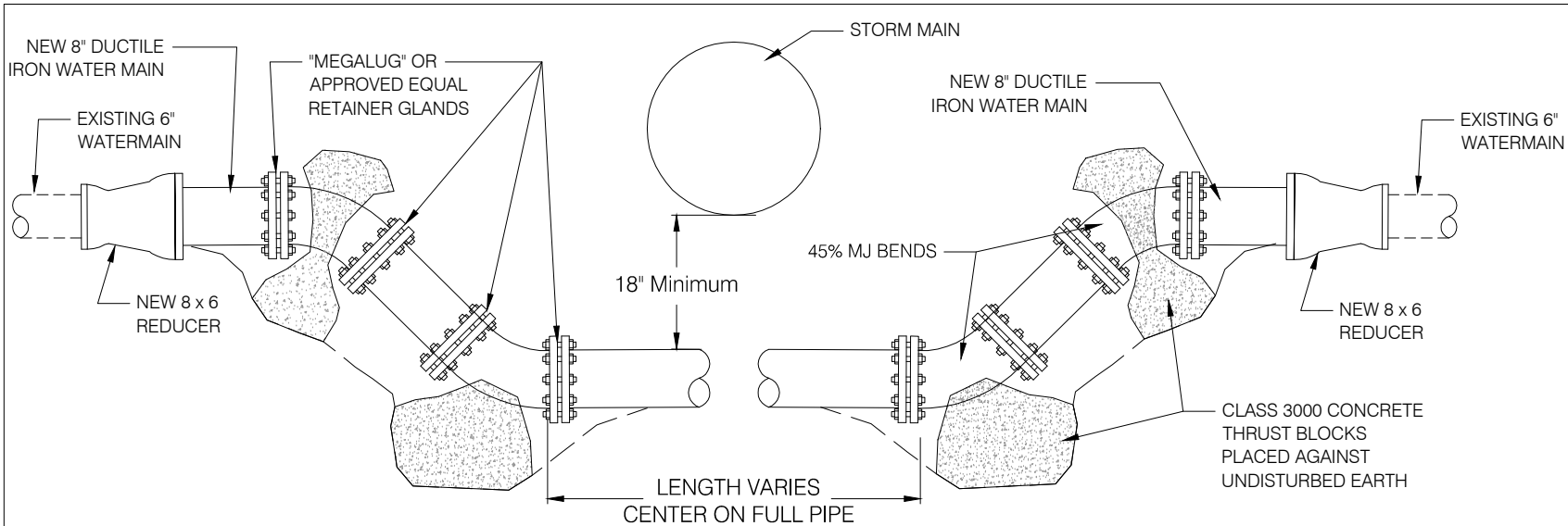
PLAN & PROFILE

SHEET NO.

5

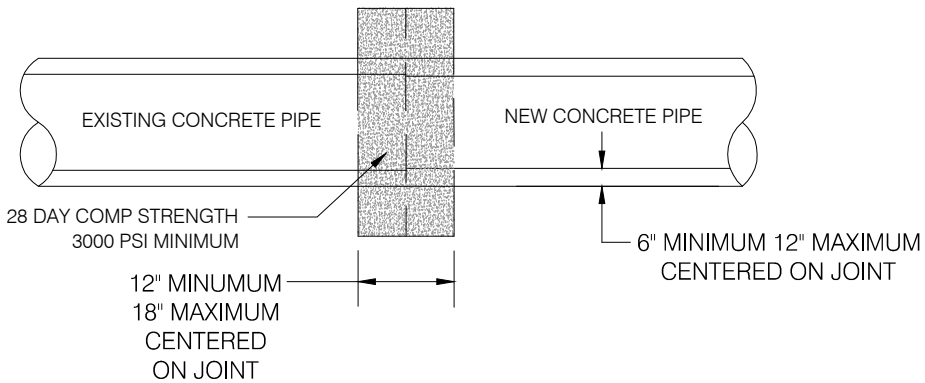
OF 7





WATER MAIN VERTICAL ADJUSTMENT DETAIL
NOT TO SCALE

1
7

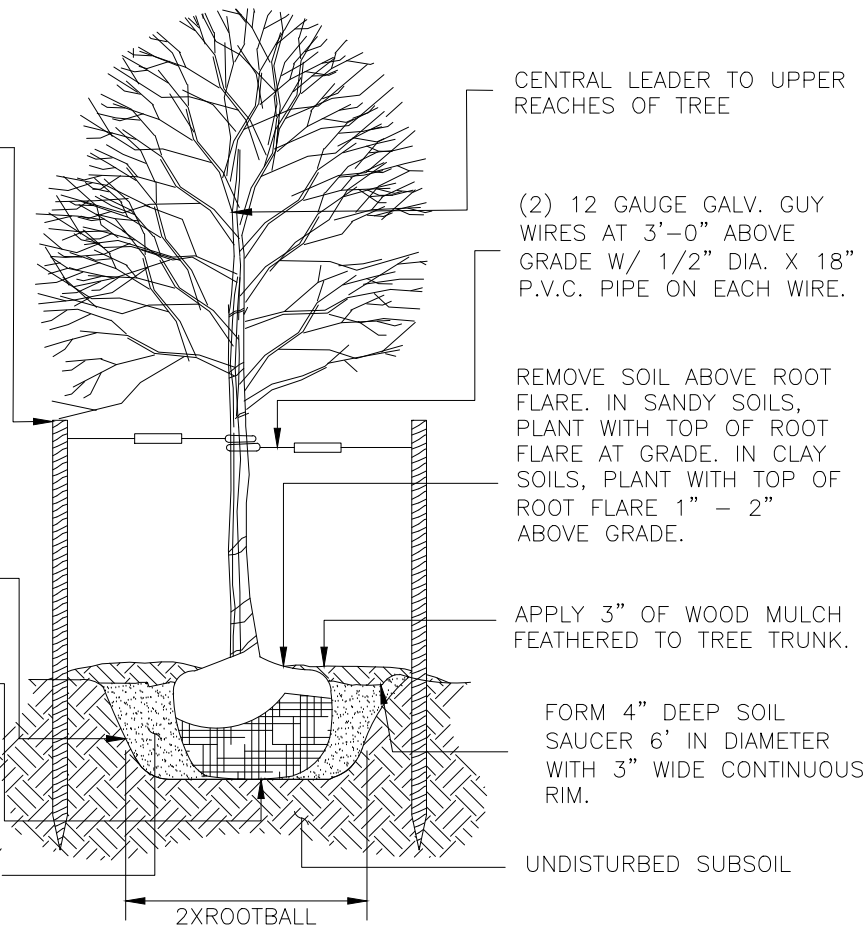


TYPICAL CONCRETE COLLAR DETAIL
NOT TO SCALE

2
7

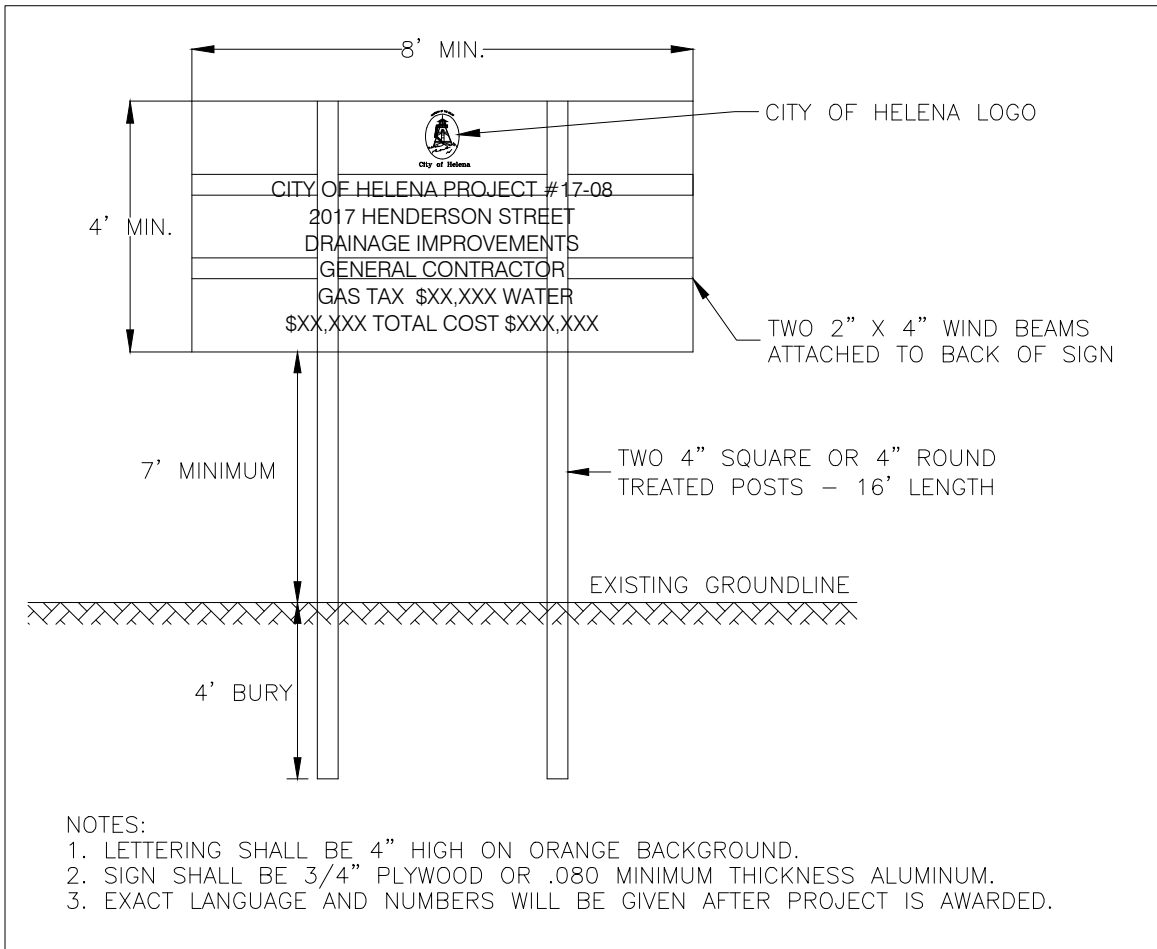
- NOTES:
1. CHECK NATIVE SPECIES FOR ACCURACY PRIOR TO PLANTING.
 2. KEEP PLANT MOIST AND SHADED IN MULCHED BEDS ON SITE UNTIL TIME OF PLANTING.
 3. DO NOT DAMAGE OR CUT LEADER.
 4. PRUNE ALL DAMAGED OR DEAD WOOD AFTER PLANTING, STAKING AND MULCHING.
 5. KEEP CROWN SHAPE TYPICAL OF SPECIES. REMOVE ALL PLANTING TAGS, TAPE AND LABELS AFTER FINAL ACCEPTANCE BY LANDSCAPE ARCHITECT OR ECOLOGIST.
 6. PROVIDE WILDLIFE PROTECTION AS NEEDED.
 7. CUT AND REMOVE ALL WIRE/TWINE WRAPPING AND BURLAP.

- (2) METAL 'T' POST STAKES WITH (2) 2" WIDE CANVAS STRIPS WITH GROMMETS AND PROTECTIVE CAP, DRIVE (MIN 24") FIRMLY INTO SOIL ON WINDWARD AND LEEWARD SIDES OF TREE PRIOR TO BACKFILLING. TREES LARGER THAN 3" CALIPER SHOULD HAVE 3 POSTS IN TRIANGULAR SPACING.



TREE PLANTING DETAIL
NOT TO SCALE

4
7

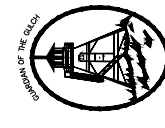



4' X 8' PROJECT INFORMATIONAL SIGN DETAIL
NOT TO SCALE

3
7

NO.	REVISION DESCRIPTION	BY	DATE
1			
2			
3			
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5			
6			
7			

PROJECT: 17-08	DESIGNED: MJC	DRAWN: MLB	CHECKED: RCL	APPROVED: RCL	DATE: JULY 2017
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	City of Helena
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	PROFESSIONAL ENGINEER
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CITY OF HELENA PROJECT 17-08 HENDERSON STREET DRAINAGE IMPROVEMENTS GENERAL DETAILS
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SHEET NO. 7 OF 7
